was intended to be an authoritative text on materia medica preparations used by physicians; and this original intention should be restored. It is therefore urged that every incorporated medical society and college send three delegates to the Pharmacopeial convention which will meet in Washington, May 10, 1910. Our State Society is urged to elect three delegates to this convention; delegates who can and will attend the meeting and make a suitable effort to see that medical authority in formulating the Pharmacopeia is restored. Any member who can and will attend the convention, May 10, 1910, is requested to notify the secretary, Butler Building, San Francisco, immediately.

DELAYED RECOGNITION.

The United States Pharmacopeia should be of great interest to physicians and pharmacists alike; as a matter of fact, however, most of the former and a goodly number of the latter have never even seen a copy of it and know nothing as to its contents or, indeed, what it is about. The work of getting out such a book is very great and is controlled by a comparatively small number of trustees, since 1860 mostly made up of men interested in pharmacy or in the publication of books on therapeutics which are, necessarily, based upon the Pharmacopeia. It is a distinct recognition of the work of the American Medical Association, in that the secretary of the association has recently been elected a member of the board of trustees of the Pharmacopeia. The association has done more to improve conditions in pharmacy and materia medica, in the last few years, than any Pharmacopeial convention or any board of its trustees ever did, and doubtless the influence for good of the association, expressed through the medium of its secretary on this board, will be decidedly marked and very valuable. In the *Midland Druggist* for December is an article on this subject in which the work of the association, and of its secretary, Dr. Simmons, as well as the wonderful work of Prof. Puckner, the secretary of the council on pharmacy and chemistry, are highly recommended. This is only noteworthy because of the fact that it is about the first time that any pharmaceutical publication (except the *Druggists' Circular*), has had anything good to say on the subject. Drug journals get a lot of their income from nostrum advertisements; therefore, drug journals do not like to be forced to recognize that a goodly share of the things they advertise are rotten frauds; therefore, they do not like the association or its council on pharmacy and chemistry. It is very simple. It is to be hoped that the next edition of the Pharmacopeia will represent less archaic material and more of what the practising physician needs and uses. Also, it is to be hoped that various "interests," publishing and otherwise, may be markedly less in evidence than has been the case in previous editions.

ORIGINAL ARTICLES

THE USES OF BACTERIAL VACCINES IN URINARY DISEASE.*

By GRANVILLE MacGOWAN, Los Angeles.

Out of the labors of many men whose lives have been given up to the investigation of the wonders, greater than any fairy tale ever told, of serum therapy, has grown the marvelous and miraculous application of the principles of bacterial vaccines.

Great aids to medicine they are, at times averting the necessity for surgical interference; and great aids to surgery at times, when used with judgment, and systematically, with appreciation of what is required of them, rendering successful operation certain where without them cure would be doubtful.

It is understood that in presenting this paper, I am to give you my individual impressions as to the value of the use of these vaccines in the treatment of infective diseases of the urinary organs, not compiled from the printed reports of others. The report upon the use of tuberculin is based upon the combined experiences of my associates, Dr. Henry Lissner, Dr. Frank Dillingham and myself, each in treating cases for himself, and both Dr. Lissner and Dr. Dillingham in treating cases for me. All opsonic work has been done by Dr. Lissner, the conclusions are not my conclusions but our conclusions, all work being checked between us.

The work upon the gonococcus vaccines is also the work of all three of us. The staphylococcus and colon inoculations are my own and are given for what they are worth.

Of course the reliability of a vaccine will depend entirely upon the intelligence and care of the individual preparing it, and the attention given to its preservation. It has been our custom to make individual cultures, and prepare, where there was any variation from the type, an autogenous vaccine, and when we obtained any particularly pure strain, to preserve it for stock. These vaccines have been prepared by Dr. Henry Lissner and Dr. Ethel Leonard.

In many cases we have controlled their exhibition, especially that of tuberculin, for several months, by frequent opsonic indices, so that we might, so to speak, get the reactive gait of the patient. In others, staphylococcic and streptococcic infections, no indices were taken at all as the clinical indications were as perfectly plain as the results obtained were prompt.

1. Tubercular Infections of the Urinary Organs.

Whenever tuberculin is referred to in this article, Koch's T. R. is meant.

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* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

I have had a large experience in the treatment of these diseases, and have grown into an optimist as to their curability. Each therapeutic measure is regarded merely as an adjunct, tuberculin being one of the most valuable. In no case has tuberculin been used alone, or entire reliance been placed upon it to effect a cure. It has been a plus quantity used in addition to hygienic, antiseptic, analgesic, and the general or local surgical measures which I have previously spoken of before this Society. In all cases but one it has seemed to possess distinct helpful value.

In establishing the dose for each individual there is no general law to be observed, except that it shall not be so much as to produce a marked general or local reaction. As a rule the greater amount of tissue involvement, the less the therapeutic dose required.

One is always confronted in cases of general tuberculosis, or where the genital organs, the kidneys, or the ureter, are involved with the bladder, by the liability of auto-inoculation occasioned by active movements, sexual excitement, the defecation of constipation, local massage, or the breakdown of caseous masses following septic infection, etc. It is in uncomplicated vesical tuberculosis, or in the early stages of renal tuberculosis, before caseous degeneration and ureteral thickening and occlusion takes place, that doses of considerable size are not only tolerated, but prove beneficial. Really it seems to us that in simple vesical tuberculosis, where the cystoscope shows plainly vesical involvement, with the presence of tubercle bacilli in the urine, and no discoverable lesion elsewhere, the danger of auto-inoculation is very small.

Matthews, first assistant to Sir A. E. Wright, states that 1-4000 mgm. of tuberculin is a sufficient dose for any case of tuberculosis of the genito-urinary organs. Walker speaks of giving 1-500, and even 1-250 mgm., fortnightly or monthly, in genital or renal tuberculosis, for years, with marked benefit upon the pain. Of course the susceptibility of the individual to bacterial reactions accounts for the wide difference in the doses as here exemplified. We prefer to give moderately small initial doses with considerable frequency, that for a child being from 1-10,000 to 1-5,000 mgm., and for an adult from 1-3000 to 1-2500 mgm., and we rarely increase this to more than 1-1000 mgm. in an adult, and 1-3000 in a child. We have used slightly greater doses at times but we believe that they are unnecessary and may prove injurious. For indications for increasing the dose above 1-1000 mgm. no instructions can be given, for each case is to be studied and treated as an individual—as if it were the only case. Generally speaking, when a case comes to a standstill, the dose can be increased with beneficial results. We now have individuals who have taken injections of 1-1000 mgm. every 4 or 5 days for periods approximating a year, always as I have said, with benefit. One case received 1-1000 mgm. every other day, because he said he felt so much better after each dose that it was decided the more frequent dose would prove of greatest benefit. The opsonic chart of this case which is attached shows the relation of the reaction to the index, and also the effect of each injection to the index. Favorable progress is indicated by the relief of pain and cystospasm, the lessening of the frequency of calls for urination, and the modification of haemorrhage and pyuria, together with the healing of existing ulcers of the bladder wall, and the disappearance of the irritated, paprika sprinkled condition about the ureteral opening on the affected side. Urinary frequency is benefited almost from the first, but continues above the normal long after the pain has disappeared. Of course where there is interstitial or parenchymatous infiltration of tuberculous granuloma into the bladder wall, with thickening and destruction of tissue, or the ureters are greatly involved, or the kidney substance destroyed by abscess formation it would be foolish to look for any rapid alleviation even with the assistance of tuberculin.

Such of these cases as are surgical should have the injections often enough to raise the index before any operative interference is attempted.

To sum up—we do not regard the opsonic index as a sinae quae non in the treatment of tuberculosis by injections of tuberculin. It has a value, and a decided one, when carried out by a trained person in establishing relatively the susceptibility of the individual to the influence of inoculations. But it is an expensive and onerous procedure, with too great an opportunity for individual variation to ever be mathematical in its workings, by any, except the highest trained experts in constant practice, and is consequently entirely beyond the use of the general practitioner of medicine, who must treat the great bulk of the tuberculous.

(1.) While injections of tuberculin have a definite usefulness in the treatment of tuberculosis of the urinary organs, they should not be depended upon to effect a cure of the disease.

(2.) The initial dose of tuberculin is from 1-5000 to 1-2500 of a mgm. in adults and the progressive dose may be gradually and safely raised to 1-1000 mgm.

(3.) Such doses will not be followed by any disagreeable or dangerous reactions, and distinct therapeutic benefit may commonly be observed after them.

(4.) Careful clinical observation of the symptoms complex of the disease renders the opsonic index unnecessary.

(5.) No case should be esteemed cured except upon the cessation of the disturbing symptoms of pain, frequency of urination, haematuria, pyuria, for a period of at least six months, coupled with the negative finding of tubercle bacilli in the urinary sediment. Animal inoculations, at least two, should be the deciding test of cure.

Appended are four case histories which serve as illustration of the routine of treatment as used by us and its results, which are sufficiently encouraging.

Case 1: A. W., 16 years old, school girl. Average afternoon temperature, 100. She has been ill for five months and has gradually lost weight and strength. Her most marked symptom is urinary frequency without pain, the intervals being from 3 to 15 minutes day and night. About July 1st blood appeared in the urine, which is now a port wine color, and contains pus and tubercle bacilli, but no kidney cells or casts. Though urination is not painful, the urethra is extremely sensitive to touch.

Aug. 1, '08. Cystoscopic examination.

Bladder wall edematous, ulcers abundant. Bladder capacity under deep anaesthesia, 25 cc.

Treatment:

Koch's T. R. commencing with a dose of 1-4000 mgm. every four days, the dose being slowly raised until a maximum dose of 1-1000 was taken. This treatment has been continued until the date of this report. A summary of her condition is as follows: Urinary frequency, one hour or longer during the day. No pus or blood in the urine—no temperature, feels fine, general health good, has increased in weight 30 lbs. Sleeps as a rule all night—with some incontinence.

Case 2: G. K., 30 years old. Patient of Dr. Gibbons. Opsonic indices and stainings for tubercle bacilli by Dr. Henry Lissner.

Family history, negative. Four years ago she had diphtheria and has not been strong since. Two years ago, dysuria commenced, at first moderate, it gradually increased in severity until in April, 1908, the pain was very severe, the intervals about hourly, and the urine was stained with blood.

Physical examination of other organs negative. Cystoscopic examination.

Edematous bladder, mucous membrane had many minute ulcers scattered through it, and there was one large irregular ulcer in the right lower quadrant external to the ureteral orifice. Urine contained blood, pus and tubercle bacilli in great abundance. Following this examination the patient was absent from California until Aug. 3rd, at which time treatment was commenced.

Her weight, normally 155 lbs., was reduced to 122¼ lbs., and she was weak, and in continuous pain with her bladder, and her digestion was greatly impaired.

Hygienic treatment, rest, sleep in the open air, and forced feeding were carried out and on Aug. 5 she received her first injection of tuberculin. At the end of Sept. her weight had increased to 127½ lbs., but there was no change in the dysuria. At the end of Oct. she weighed 131 lbs. and had greatly improved in strength. At the end of Nov. she weighed 132 lbs., the gain in strength was continuous, and the pain on urination was much less.

Cystoscopic examination showed the ulcers in process of repair, there was much less pus in the urine and the tubercle bacilli were much lessened in each field. At the end of Dec. the urinary frequency had decreased and the bladder capacity increased.

At the end of Jan. she was still stronger; the oedema of the bladder had nearly disappeared and the large ulcer had healed completely. Her weight remained at 132 lbs. Through Feb. and March the pain gradually disappeared entirely, the urine became almost clear and though tubercle bacilli were still present, they were found only after careful centrifuging and with much difficulty.

Local treatment did not figure greatly in the result, for it consisted in Aug., Sept. and Nov., of irregular irrigations of boric acid and sulphate of quinin solutions. From Dec. she has had tri-weekly vesical lavage with 1-30,000 silver nitrate solution.

Her strength has improved continuously but her weight has been at a standstill for some time, her physician thinks this is owing to occasional rather severe attacks of indigestion.

At this writing she can hold urine for five hours during the day and rises only twice at night. There is very slight pain on urination.

Amelioration of the pain has always followed promptly the injections of tuberculin.

Case 3: May 27, '08.—L. B., age 28. Dairyman. Normal weight 162 lbs. Sent to me by kindness of Dr. J. T. Stewart: Family history negative. No previous diseases except gonorrhea in 1906; this was easily cured. In Dec., 1907, frequent and painful bloody urination was first noticed and since that time the symptoms have been progressive, until now during the day he is obliged to urinate every fifteen minutes and at night dribbles continuously. Intense pains in glans, and cystospasm.

May 27, cystoscopic examination with direct instrument. Bladder capacity under deep anaesthesia 60 cc. Walls infiltrated, mucous membrane covered with pus, and full of typical tuberculous ulcers. Ureteral openings could not be distinguished. Ulcers most abundant upon the right side. Tubercle bacilli abundant in the urinary sediment.

There is marked prostatic and vesicular infiltration, these organs are bound together in one great mass by inflammatory products. Neither kidney could be palpated. Testicles normal. The tuberculous process seems to be limited to the urinary and sexual organs.

His general condition is distinctly bad. He has afternoon temperature, night sweats, loss of appetite and his weight reduced, and strength greatly impaired.

Treatment: He was placed immediately upon injections of tuberculin 1-4000 mgm. These injections were given every two, three, four or six days under opsonic control, for purposes of experiment, during the months of June, July, August, September and November. The quantity was gradually increased to 1-800 mgm. and finally a dose of 1-1000 mgm. was settled upon. This has been continued every fourth day until the present.

In addition to the injections he has received the regular treatment internal and external, before mentioned in this article.

The local treatment consisted for the first three months in daily instillations of 1 cc. of a solution of sublimate 1-10,000 to 1-7000. Early in Sept. the right seminal vesicle, and a gumma of the adjacent bladder wall, broke down and the abcess cavity pointed in the prevesical space on the left side. This was opened freely, curetted and cauterized with a 50% sol. of zinc chloride. It was found to communicate with the bladder by a narrow opening low down. His condition was so alarming, just before and during the operation, that I thought we would lose him. The wound was stimulated with iodoform and Peruvian balsam packing, was repeatedly cauterized by introducing fleches of the moulded stick of silver nitrate, and some forty exposures to the Roentgen Ray. It finally closed solid about Jan. 15, 1909. Since this time his improvement has been progressive; he has increased in weight from 140 to 156 lbs.; he has laid aside the urinal which he wore for many months, his frequency during the day is from 45 to 90 minutes and at night hourly; the bladder capacity is 60 cc. without anaesthesia. The pain on urination has greatly diminished and the continuous pain in the glans disappeared. The prostate and left vesicle are much smaller, and the right vesicle and right side of the prostate are atrophied now. The bladder remains a small, thick globular organ, the examination of which by the cystoscope is not very satisfactory.

Case 4: X. Y. Z., age 47. Patient of Dr. Wynne of Redlands.

June 4th, 1908. Infection with organisms of Neisser twenty-five years ago, which was followed by stricture and perineal fistula. For the past five months he has had a profuse, thin, sticky, mucopurulent discharge from the urethra. Examination of this discharge and the expressed contents of the prostate and seminal vesicles, by smear, and culture, negative as to diplococci. Tubercle bacilli were found in abundance, but none in the urinary sediment. He has lost thirty pounds in weight since the urethral discharge commenced. He is very feeble, extremely sensitive to pain, nervous and apprehensive, and has suffered for weeks from drenching night sweats. Urinary frequency, every two hours. Pain great. The glans penis is covered with shallow ulcers and there is a cicatricial and ulcerated contraction of the meatus, and the urethra immediately posterior to it. This was freely incised to allow of inspection of the pendulous and anterior perineal parts of the urethra.

June 15th. First injection of tuberculin 1/3000 mmg. Inspection of first 2½ inches of the anterior urethra through an endoscope revealed numerous minute tuberculous ulcers which bled easily. Posterior to this the urethra was narrowed to 16 F. The face of the constriction was covered with small, wart-like growths. All that portion of the urethra to which reference has been made was painted every second day with 25 per cent solution of silver nitrate. From the beginning he had received internally a Guiacol preparation, Fagasol by name, Urotropin, and at night Camphoric acid, for the severe perspiration. He also received 4 cc. of 10 per cent Iodine Vasogen by inunction into the abdominal wall daily.

On the 23d of June the fistulous tract in the perineum becoming acutely inflamed, he agreed to radical measures, and on the 25th I did an internal urethrotomy, enlarging the calibre of the urethra to 30 F., excised the entire tuberculous tract in the perineum and cauterized the raw surface with a 50 per cent solution of Chloride of Zinc. A part of the floor of the bulbous urethra was removed by this operation. A catheter was passed into the bladder through the urethra from the meatus and tied in for three days. Subsequent treatment consisted in the passage of sounds daily for fourteen days, until the healing of the perineal wound had progressed so that he could be about, and then every fourth day until November 1st; daily irrigations of urethra and bladder with 1-30,000 silver nitrate solutions, and application of fused silver nitrate, or Liquor Antimonii to the urethral ulcers, and the granulating surface in the perineum, as necessary, were made until they were all healed. In addition, Roentgen Ray exposures to the site of the fistula, before and after healing; prostatic massage every four days, hypodermic injections of tuberculin every four or five days and the medical treatment referred to above were used.

Improvement was gradual but steady, both in general strength and local symptoms. He was esteemed cured at the end of the first week in November, when the urine was clear, the intervals of urination reduced to once in four hours during the day, and no necessity for rising at night existed any longer. The discharge from the urethra ceased in October. No tubercle bacilli were found in the urinary sediment after the middle of September. The opsonic index, which was taken regularly in the case and the chart of which is attached, became normal September 15th and has remained so ever since.

He comes to me now every month for inspection, and at the time of writing this report, he is more than forty pounds heavier than he was a year ago, urinates a large stream of clear urine without pain or frequency, has a soft, pliable perineum, has no nodules in his prostate, has no ulcers in his bladder or urethra, has a normal index to the tubercle bacillus, and appears to be in every way perfectly well.

Use of Vaccines in Staphylococcic Infections of the Bladder.

As an illustration of the power of a vaccine to remove certain alarming toxic conditions existing in a chronic infection of the bladder, we cite this case: February 13, 1909. T. W. G., 65 years old; manufacturer.

Prostatic for two years; passes small quantities of urine every five to ten minutes with much pain. Residuum 250 cc., which is acid and full of pus and micro-organisms; no marked impairment of renal function. He has had temperature and increased pulse rate for several weeks; has the facies of an infected person, but is not anaemic.

February 16, 9 a. m. Suprapubic prostatectomy without difficulty. After operation, the temperature and pulse remained high, the former ranging in the evening from 100.6 to 102.F, and the latter being commonly about 100.

As the bladder was closed tightly about the De Pezzer drain, all of the urine was easily collected and when measured and analyzed found practically normal in amount and composition. There was no yellowness of the skin or conjunctiva. He took only milk and lime water, or milk and Vichy, or peptonized milk. Yet there was a drowsiness and languor, with a sense of extreme weakness, accompanied by nausea, that could only be accounted for by an increase of the infection existing before operation. A culture was made and the predominating organisms were found to be the Staphylococcus Aureus and Albus.

On the 21st he was given an injection of 50,000,000 of this vaccine. On the 22d he was much brighter and asked for food, which he had not done before. On the 23d he had relapsed into hebetude. A second injection of the same amount was given. On the 24th and 25th he was better. On the 26th a relapse commenced and he was given a third injection. Following this there was a fall both in temperature and pulse rate, which had not been noticed before, and an intellectual brightening and a stomachic wake-up that was encouraging. On the 1st of March the nurse reported that there were evidences of return of the nausea and languor. I immediately gave him a fourth injection, after which there was no return of these ominous symptoms.

The relation between the cause of the infection and the results of the remedy do not seem accidental to me.

The ultimate result of the operation on this gentleman has been entirely satisfactory.

The immediate results of the use of Vaccines in appropriate cases are sometimes absolutely startling and appear like the work of a magician, as instanced in the case now related.

November 9, 1908. J. T. McF., farmer, patient of Dr. J. T. Stewart.

He has been a prostatic for two years, led a catheter life for one year, and has now reached the limitations of the latter, for the passage of a stiff instrument only is possible, and that after prolonged and difficult effort. Urine contains pus, blood, much albumen, but no casts. He is septic and has suffered much pain, and has had repeated chills and high temperature.

November 12th, prostate removed through perineum without great difficulty.—Spinal anaesthesia.

On the 14th of November he developed a cough which grew worse, but without any signs of pneumonia. On the 18th he developed a peculiar languor, nausea, restlessness, stupidity entirely unlike uraemia, which increased as the days went by, the temperature, pulse and respiration all increasing, the latter bearing no fixed relation to the former. For all this we could discover no cause. His urine, which came away through drainage tubes, was normal in quantity, and the quality good, and there was no cessation of the liver functions. On the 22d of November he commenced to have involuntary movements of the bowels and the septic condition became alarming. Dr. Stewart and I were both at a loss for the cause, which, not being able to find, we blindly attributed to the grippe.

While irrigating his bladder on the morning of the 22d, I noticed a lot of golden yellow granules in the return flow. These I at first thought were particles of the vaseline used to lubricate the catheter, but upon examination I found that they were little clumps of mucous or pus, and that the task of washing them all out seemed endless. Upon close examination they looked so much like giant colonies of the staphylococcus aureus that my curiosity was excited, for if they should be, it was evident that the bladder had become a culture ground for this bad microbe. I collected some of them on some sterile gauze and took them to the laboratory, and Dr. Lissner prepared a culture which proved to be an almost pure one of this special coccus.

At 2:45 p. m. on the 23d of November we gave him an injection of 80,000,000 of the Staphylococcus Aureus Vaccine. This was followed in a few hours by a drop in the temperature from 102.6 to 99.6 and an improvement in the lethargy and stupidity.

On the 24th of November at 10 p. m., the temperature having risen to 100.6, and the lethargy increasing again, he was given an injection of 60,000,000 of the Staphylococcus Vaccine. At midnight the temperature had dropped to 98.6 and he had sunk into a peaceful sleep which lasted until 8 a. m., when his temperature and pulse were normal, his respiration had fallen to 22, and he was alert, intelligent and asking for food. Within two days no further yellow granules could be found in the bladder washings, and though he had a long convalescence, due to a variety of depressing influences, he never from that day to this has had any return of the septic poisoning, which was so clearly due to the Staphylococcus Aureus, and which so promptly yielded to the vaccine.

The Use of Vaccine in the Treatment of Gonorrhea.

When it was first known that a vaccine could be prepared from the gonococcus, its advent was hailed with fervor, and the long-looked-for quick cure was believed by many to have been found.

We have treated quite a number of cases of gonorrhea, just how many exactly I cannot say, but surely as many as one hundred, both acute and chronic, the latter predominating, a few times with the gonococcus vaccine alone, but commonly, and always now, with the remedies and measures usually employed in the treatment of this disease.

Acute gonorrhea is a disease of such variable virulence, subsiding in a very limited number of cases in persons whose tissues possess a marked power of resistance to the specific organism, in from a very few days to two weeks, under such a variety of remedies both local and general, and resisting all treatment in so many cases for a period of from four weeks to four months, that it is hard to judge accu-

rately how much influence the use of the vaccine has in producing a cure. We are entirely satisfied, however, that our cases progress better, that the discharge lessens and disappears quicker, and that the ardor urinae is less intense, and complications like chordee, epididymitis, and prostatic and vesicular inflammations are of less frequence and of milder type, when very small doses, 10,000,000 to 20,000,000 are used regularly from the beginning; and that the symptoms of the disease can be at any time aggravated by the use of large doses.

There are a vast number of men and women in whom the disease lasts from four months to forty years. It was related to me once by Von Langenbeck, the celebrated Berlin surgeon, that a great German general whose pluck and military genius early in the nineteenth century were a deciding factor in preventing the continent from becoming all French, contracted this disease when he was a lieutenant not more than twenty years of age, and still had it at his death, which occurred when he was past seventy.

We see many of these chronic cases. I may say that I see very many more of them than I do of those in the acute stage.

Our routine in all cases that apply on account of chronic urethral discharges, or irritable bladder, or obscure pains in sacral region, whether they have manifestly large prostates or not, is to carefully express the contents of the prostate and seminal vesicles into a sterile glass receptacle, and from this prepare cultures.

It is astonishing how often, under these circumstances, we grow the gonococcus. Many of these people deny honestly that they have ever had gonorrhea, but nearly always recollect and state at a subsequent visit that they had, five, ten, fifteen or more years ago, and Dr. Dillingham had one case recently who stated twenty-three years ago, a slight case of urethral discharge which disappeared very easily.

In a very large percentage, probably eighty, of these very chronic cases we find the colonies of a Gram positive diplococcus growing side by side with the gonococcus. It has the same shape as the gonococcus, but instead of having an average length of 1.25, it measures from 2 to 2.50. We fail to find a description of such a Gram positive diplococcus, growing with the gonococcus upon nutrient agar plates spread with human blood, and hence are not able to give it a name. It corresponds in some respects with the stabchen diplococcus of Neisser. It seems to us, however, from the character of cases we find it in, and its association, that its part in the inflammatory process is not that of an innocent bystander. Such cases we always treat with an autogenous vaccine prepared from the growth of both organisms. I know that since we have added this therapeutic agent to our armentarium we cure these chronic cases in from periods of three months to one year, and I doubt very much whether we ever really cured any of them before. But we do not depend for the cure upon this remedy. We still treat all granular patches in the urethra by direct applications through the endoscope, dilate any strictures that may be present, massage the diseased prostate and vesicles, use urethral and vesical irrigations and instillations, and general tonics; but we do not waste time and money by administering balsamics, plain or in nauseous mixtures.

When I say we cure, I mean by a cure the entire subsidence of the symptoms, along with the inability to any longer cultivate the organisms, after several trials three or four weeks apart.

The use of vaccines prepared from the Colon Bacillus and Pyocyaneus where these organisms were the evident agents of infection. My experience with the vaccines of these organisms has been confined to five cases of chronic cystitis. I cannot honestly say that I have seen any benefit from their use in any one of the five cases.

Finally to correct any misapprehension as to our position as to the value of all vaccine treatment in urinary diseases.

It is a + therapy. It is to be added to the ordinary approved methods, used as an adjunct, and not to be depended upon ever as a specific method of curing the disease which may be in question.

THE TREATMENT OF GENITO-URINARY TUBERCULOSIS WITH TUBERCULIN.*

By F. M. POTTENGER, M. D., Monrovia.

I regret very much that I am unable to bring before you a paper based upon practical experience in the treatment of tuberculosis of the genito-urinary tract by means of tuberculin, but my experience in this field is entirely too limited to make this possible. However, I believe that a paper dealing with the theoretical application of tuberculin with the report of a few cases treated by it will be of some help to those who are attempting to handle these cases.

Inasmuch as our line of therapy in any given disease depends upon our conception of the nature of the disease, it is well at the outset to discuss the nature of tuberculosis. Tuberculosis belongs to the class of infectious diseases—that is, it is a disease produced by a specific micro-organism which requires certain conditions for its growth and which always produces certain conditions in the tissues in which it is implanted. No matter where the tubercle bacillus finds lodgment in the body, it starts up certain definite changes in the tissues. Certain definite phenomena occur. The bacilli endeavor to fortify themselves and the tissues endeavor to destroy them. Resulting from this struggle, we have those conditions which produce the visible tubercle and the changes which it subsequently undergoes, and the invisible phenomena attendant upon the stimulation of the physiological processes of immunization.

The etiology and pathology of tuberculosis are the same whether the focus of infection be in the lungs, the larynx, the bones, the genito-urinary tract or

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.